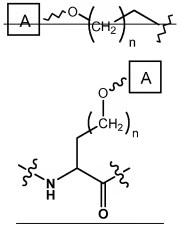
AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions, and listings, of claims in the application:

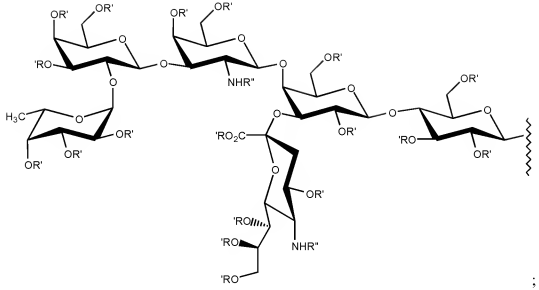
Listing of Claims

Claims 1-55: **Canceled**

56. **(Currently Amended)** A multi-antigenic glycopeptide comprising a peptidic backbone made up of at least three amino acid residues, wherein two or more of said amino acids are independently ~~substituted with a glycosidic moiety having the structure~~:

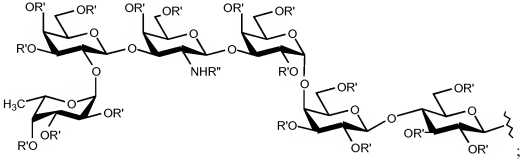


wherein each occurrence of A is independently a carbohydrate determinant selected from the group consisting of Globo-H, fucosyl GM1, KH-1, glycophorin, STN, Le^y, N3, Tn, 2,6-STn, (2,3)ST, TF, a carbohydrate domain having the structure:



;

and a carbohydrate domain having the structure:



;

wherein each occurrence of R′ is independently hydrogen or a protecting group; and wherein R′′ is hydrogen or a nitrogen protecting group;

wherein each occurrence of n is independently 1-8 and at least one occurrence of A has a different structure from other occurrences of A.

57. **(Canceled)**

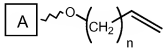
58. **(Previously Presented)** The glycopeptide of claim 56 wherein the glycopeptide is bound to an immunostimulant carrier protein, peptide or lipid.

59. **(Previously Presented)** The glycopeptide of claim 58 wherein the carrier protein is bovine serum albumin, polylysine or keyhole limpet hemocyanin.

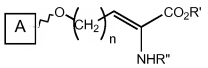
60. **(Previously Presented)** The glycopeptide of claim 58 wherein the lipid is tripalmitoyl-S-glycerylcysteinylserine.

61. **(Previously Presented)** The glycopeptide of claim 56 wherein the amino acids substituted with an n-alkyl glycosidic moiety are prepared by a process comprising steps of:

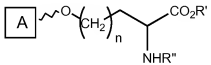
(a) providing an alkenyl glycoside having the structure:



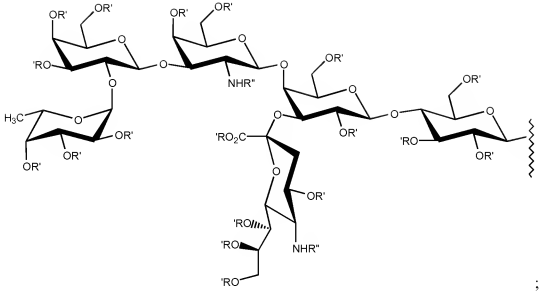
and reacting said alkenyl glycoside under suitable conditions to generate an enamide ester having the structure:



(b) reacting said enamide ester under suitable conditions to generate a glycoamino acid having the structure:

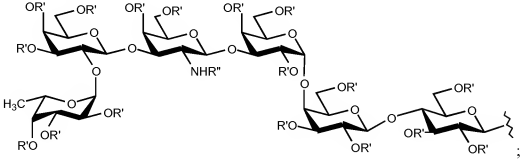


wherein, for each of the structures above, n is 1-8, wherein A is a carbohydrate domain selected from the group consisting of Globo-H, fucosyl GM1, KH-1, glycophorin, STN, Le^y, N3, Tn, 2,6-STn, (2,3)ST, TF, and protected form thereof, a carbohydrate domain having the structure:



;

and a carbohydrate domain having the structure:



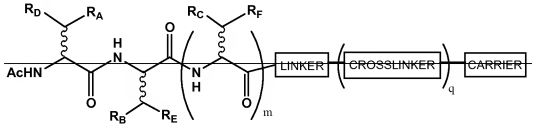
;

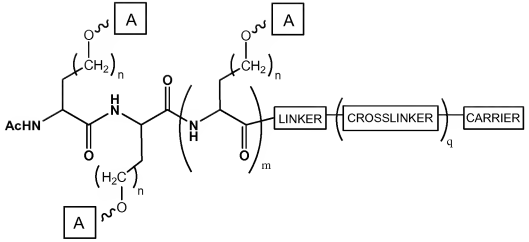
wherein each occurrence of R´ is independently hydrogen or a protecting group;

and wherein R´´ is hydrogen or a nitrogen protecting group;

and wherein for the glycoamino acid structure R' and R" are each independently protecting group or hydrogen.

62. **(Currently Amended)** The glycopeptide of claim 56, wherein said glycopeptide is a construct having the structure:





wherein the linker is -O-, -NR_G-, -$NR_G(CR_HR_I)_kNR_J$-, -$NR_G(CR_HR_I)_kNR_f(C{=}O)(CR_HR_I)_kS$-, -$(CR_HR_J)_kNR_I$-, -$O(CR_HR_I)_kNR_J$, an oligoester fragment comprising from 2 to about 20 hydroxy acyl residues, a peptidic fragment comprising from 2 to about 20 amino acyl residues, or a linear or branched chain alkyl or aryl carboxylic ester; wherein each occurrence of k is independently 1-5; and each occurrence of R_G, R_H, R_I and R_J is independently hydrogen, a linear or branched, substituted or unsubstituted, cyclic or acyclic alkyl moiety, or a substituted or unsubstituted aryl moiety;

wherein the crosslinker is a moiety derived from a crosslinking reagent capable of conjugating a surface amine of the carrier with a terminal thiol of the linker;

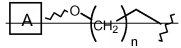
wherein the carrier is a protein or lipid;

wherein m is 1, 2 or 3;

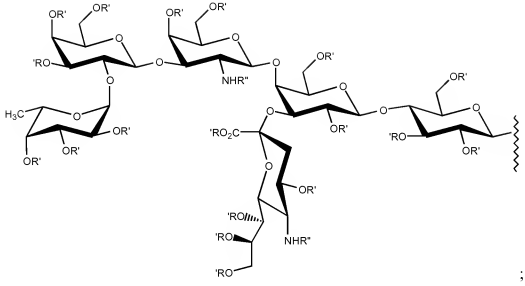
wherein q is 0 or 1;

~~wherein each occurrence of R_A, R_B and R_C is independently H or methyl; and~~

~~wherein each occurrence of R_D, R_E and R_L is independently an alkyl glycosidic moiety having the structure:~~

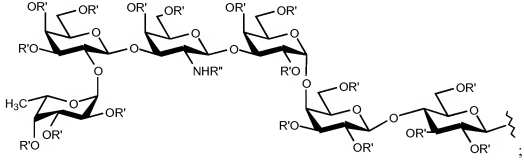


wherein each occurrence of A is independently selected from a carbohydrate domain selected from the group consisting of Globo-H, fucosyl GM1, KH-1, glycophorin, STN, Le^y, N3, Tn, 2,6-STn, (2,3)ST, TF, a carbohydrate domain having the structure:



;

and a carbohydrate domain having the structure:



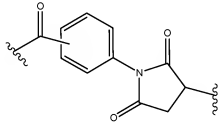
;

wherein each occurrence of R´ is independently hydrogen or a protecting group; and wherein R´´ is hydrogen or a nitrogen protecting group;

wherein each occurrence of n is independently ~~0-8~~ 1-8; and at least one occurrence of A has a different structure from other occurrences of A.

63-64. **(Canceled)**

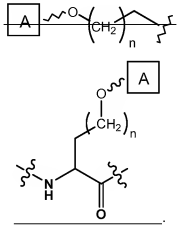
65. **(Previously Presented)** The construct of claim 62, wherein the crosslinker is a fragment having the structure:



whereby said structure is generated upon conjugation of maleimidobenzoic acid N-hydroxy succinimide ester with a linker.

66. **(Previously Presented)** The construct of claim 62, wherein m is 1 and the construct has three occurrences of A comprising Tn, Globo-H and Le^y.

67. **(Currently Amended)** The glycopeptide of claim 56 wherein the glycopeptide has six occurrences of a ~~the~~ alkyl glycosidic amino acid ~~moiety~~ having the structure:



68. **(Canceled)**

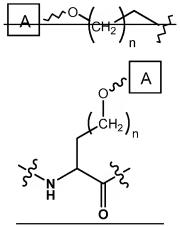
69. **(Previously Presented)** The glycopeptide of claim 56 or 67 or the construct of claim 62, wherein each occurrence of A is independently Globo-H, fucosyl GM1, KH-1, glycophorin, STN, Le^y, N3, Tn, 2,6-STn, (2,3)ST, or TF.

70. **(Previously Presented)** The construct of claim 62 wherein the carrier is bovine serum albumin, polylysine or keyhole limpet hemocyanin.

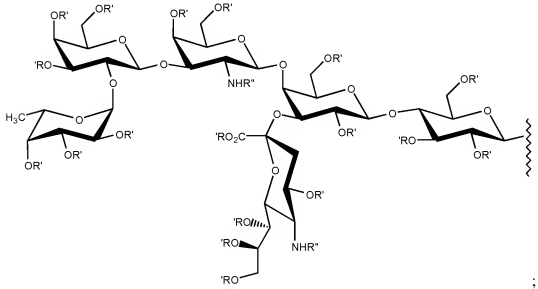
71. **(Previously Presented)** The construct of claim 62 wherein the carrier is tripalmitoyl-S-glycerylcysteinylserine.

72. **(Currently Amended)** A multi-antigenic glycopeptide comprising a peptidic backbone made up of at least three amino acid residues, wherein two or more of said

amino acids are ~~independently substituted with a glycosidic moiety having the structure~~:

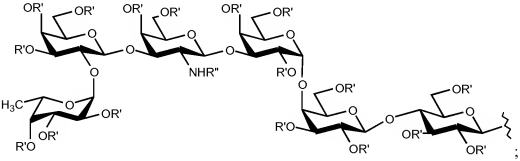


wherein each occurrence of A is independently a carbohydrate determinant selected from the group consisting of Globo-H, fucosyl GM1, KH-1, glycophorin, STN, Le^y, N3, Tn, 2,6-STn, (2,3)ST, TF, a carbohydrate domain having the structure:



;

and a carbohydrate domain having the structure:



;

wherein:

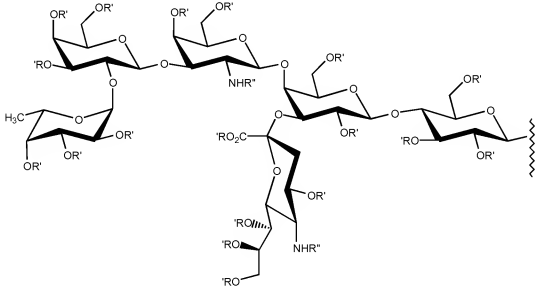
each occurrence of R′ is independently hydrogen or a protecting group;

each occurrence of R′′ is independently hydrogen or a nitrogen protecting group;

each occurrence of n is independently 1-8;

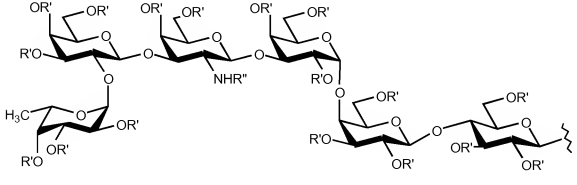
at least one occurrence of A has a different structure from other occurrences of A; and

at least one occurrence of A is a carbohydrate determinant having the structure:



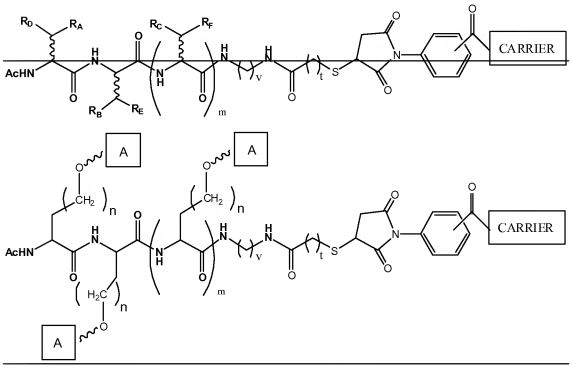
wherein each occurrence of R′ is independently hydrogen or a protecting group; and wherein each occurrence of R′′ is independently hydrogen or a nitrogen protecting group.

73. **(Previously Presented)** The glycopeptide of claim 56 or 67 or the construct of claim 62, wherein at least one occurrence of A is a carbohydrate determinant having the structure:



wherein each occurrence of R´ is independently hydrogen or a protecting group; and wherein R´´ is hydrogen or a nitrogen protecting group.

74. **(Currently Amended)** The construct of claim 62 having the structure:



wherein ~~R_A, R_B and R_C are each independently H or methyl;~~

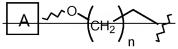
m is 1, 2 or 3;

v is 1-8;

t is 1-8; and

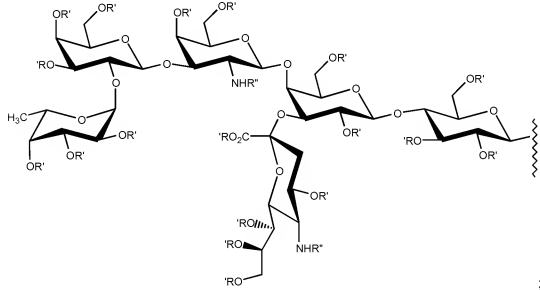
the carrier is a protein;

~~wherein each occurrence of R_D, R_E and R_F is independently an alkyl glycosidic moiety having the structure:~~



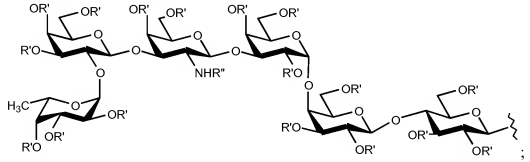
wherein n is ~~0-8~~ 1-8;

each occurrence of A is independently a carbohydrate domain selected from the group consisting of Globo-H, fucosyl GM1, KH-1, glycophorin, STN, Le^y, N3, Tn, 2,6-STn, (2,3)ST, or TF, a carbohydrate domain having the structure:



;

and a carbohydrate domain having the structure:



;

wherein each occurrence of R´ is independently hydrogen or a protecting group; and wherein R´´ is hydrogen or a nitrogen protecting group

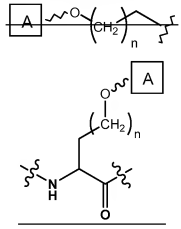
and whereby at least one occurrence of A has a different structure from other occurrences of A.

75. **(Previously Presented)** The construct of claim 74, wherein the protein is bovine serum albumin, polylysine or keyhole limpet hemocyanin.

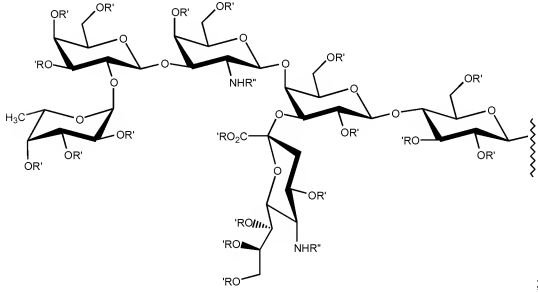
76. **(Currently Amended)** A pharmaceutical composition comprising:

one or more immunological adjuvants and/or a pharmaceutically suitable carrier; and

a multi-antigenic glycopeptide comprising a peptidic backbone made up of at least three amino acid residues, wherein two or more of said amino acids are ~~independently substituted with a glycosidic moiety having the structure~~:

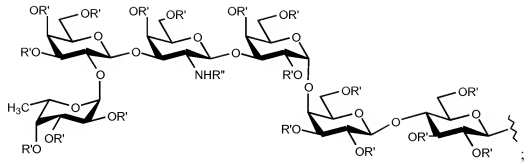


wherein each occurrence of A is a carbohydrate determinant selected from the group consisting of Globo-H, fucosyl GM1, KH-1, glycophorin, STN, Le^y, N3, Tn, 2,6-STn, (2,3)ST, TF, a carbohydrate domain having the structure:



;

and a carbohydrate domain having the structure:



wherein each occurrence of R´ is independently hydrogen or a protecting group; and wherein R´´ is hydrogen or a nitrogen protecting group;

wherein each occurrence of n is independently 1-8 and at least one occurrence of A has a different structure from other occurrences of A.

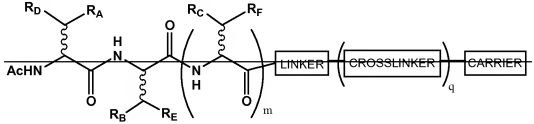
77. **(Canceled)**

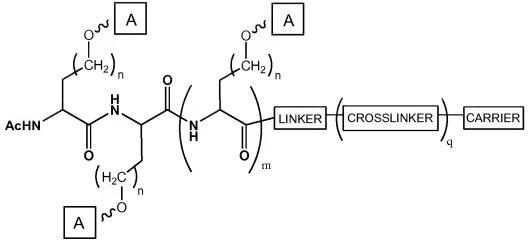
78. **(Previously Presented)** The pharmaceutical composition of claim 76 wherein the glycopeptide is bound to an immunostimulant carrier protein or lipid.

79. **(Previously Presented)** The pharmaceutical composition of claim 78 wherein the carrier protein is bovine serum albumin, polylysine or keyhole limpet hemocyanin.

80. **(Previously Presented)** The pharmaceutical composition of claim 78 wherein the lipid is tripalmitoyl-S-glycerylcysteinylserine.

81. **(Currently Amended)** The pharmaceutical composition of claim 76, wherein said glycopeptide is a construct having the structure:





wherein the linker is -O-, -NR_G-, -$NR_G(CR_HR_I)_kNR_J$-, -$NR_G(CR_HR_I)_kNR_I(C{=}O)(CR_HR_I)_kS$-, -$(CR_HR_J)_kNR_I$-, -$O(CR_HR_I)_kNR_J$, an oligoester fragment comprising from 2 to about 20 hydroxy acyl residues, a peptidic fragment comprising from 2 to about 20 amino acyl residues, or a linear or branched chain alkyl or aryl carboxylic ester; wherein each occurrence of k is independently 1-5; and each occurrence of R_G, R_H, R_I and R_J is independently hydrogen, a linear or branched, substituted or unsubstituted, cyclic or acyclic alkyl moiety, or a substituted or unsubstituted aryl moiety;

wherein the crosslinker is a moiety derived from a crosslinking reagent capable of conjugating a surface amine of the carrier with a terminal thiol of the linker;

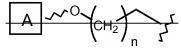
wherein the carrier is a protein or lipid;

wherein m is 1, 2 or 3;

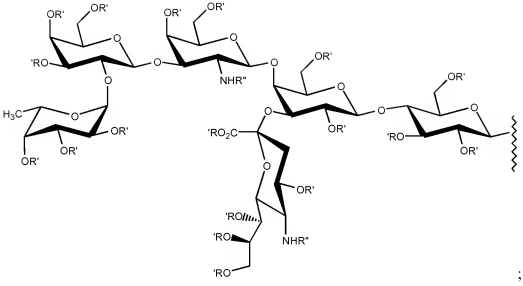
wherein q is 0 or 1;

~~wherein each occurrence of R_A, R_B and R_C is independently H or methyl; and~~

~~wherein each occurrence of R_D, R_E and R_L is independently an alkyl glycosidic moiety having the structure:~~

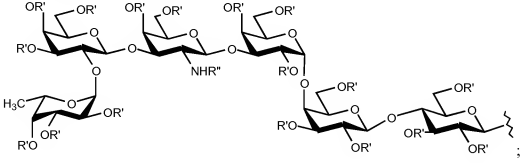


wherein each occurrence of A is independently selected from a carbohydrate domain selected from the group consisting of Globo-H, fucosyl GM1, KH-1, glycophorin, STN, Le^y, N3, Tn, 2,6-STn, (2,3)ST, TF, a carbohydrate domain having the structure:



;

and a carbohydrate domain having the structure:



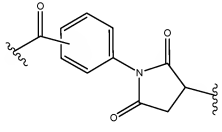
;

wherein each occurrence of R´ is independently hydrogen or a protecting group; and wherein R´´ is hydrogen or a nitrogen protecting group;

wherein each occurrence of n is independently ~~0~~ ~~8~~ 1-8; and at least one occurrence of A has a different structure from other occurrences of A.

82-83. **(Canceled)**

84. **(Previously Presented)** The pharmaceutical composition of claim 81, wherein the crosslinker is a fragment having the structure:



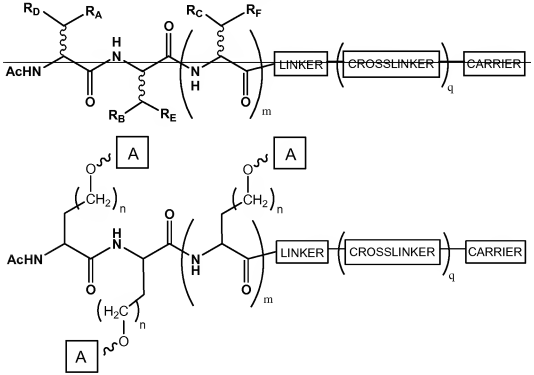
whereby said structure is generated upon conjugation of maleimidobenzoic acid N-hydroxy succinimide ester with a linker.

85. **(Currently Amended)** A pharmaceutical composition comprising:

one or more immunological adjuvants and/or a pharmaceutically suitable carrier; and

a multi-antigenic glycopeptide comprising a peptidic backbone made up of at least three amino acid residues;

wherein said glycopeptide is a construct having the structure:



wherein:

the linker is -O-, -NR_G-, -$NR_G(CR_HR_I)_kNR_J$-, -$NR_G(CR_HR_I)_kNR_J(C{=}O)(CR_HR_I)_kS$-, -$(CR_HR_J)_kNR_I$-, -$O(CR_HR_I)_kNR_J$, an oligoester fragment comprising from 2 to about 20 hydroxy acyl residues, a peptidic fragment comprising from 2 to about 20 amino acyl residues, or a linear or branched chain alkyl or aryl carboxylic ester; wherein each occurrence of k is independently 1-5; and each occurrence of R_G, R_H, R_I and R_J is independently hydrogen, a linear or branched, substituted or

unsubstituted, cyclic or acyclic alkyl moiety, or a substituted or unsubstituted aryl moiety;

the crosslinker is a moiety derived from a crosslinking reagent capable of conjugating a surface amine of the carrier with a terminal thiol of the linker;

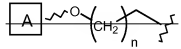
the carrier is a protein or lipid;

m is 1;

q is 0 or 1;

~~each occurrence of R_A, R_B, and R_C is independently H or methyl; and~~

~~each occurrence of R_D, R_E, and R_F is independently an alkyl glycosidic moiety having the structure:~~



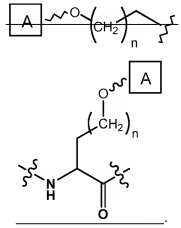
wherein:

each occurrence of n is independently ~~0-8~~ 1-8;

at least one occurrence of A has a different structure from other occurrences of A; and

the construct has three occurrences of A comprising Tn, Globo-H and Le^y.

86. **(Currently Amended)** The pharmaceutical composition of claim 76, wherein the glycopeptide has six occurrences of a ~~the~~ alkyl glycosidic amino acid ~~moiety~~ having the structure:



87. **(Canceled)**

88. **(Previously Presented)** The pharmaceutical composition of claim 76, 81 or 86, wherein each occurrence of A is independently Globo-H, fucosyl GM1, KH-1, glycophorin, STN, Le^y, N3, Tn, 2,6-STn, (2,3)ST, or TF.

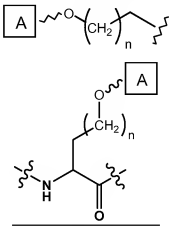
89. **(Previously Presented)** The pharmaceutical composition of claim 81 or 86 wherein the carrier is bovine serum albumin, polylysine or keyhole limpet hemocyanin.

90. **(Previously Presented)** The pharmaceutical composition of claim 81 or 86 wherein the carrier is tripalmitoyl-S-glycerylcysteinylserine.

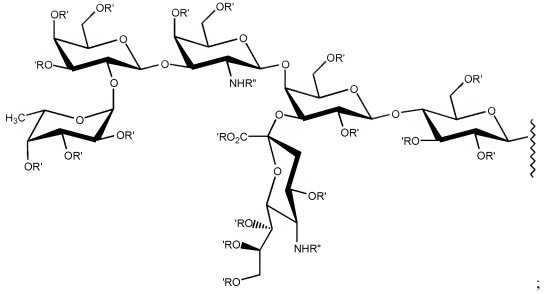
91. **(Currently Amended)** A pharmaceutical composition comprising:

one or more immunological adjuvants and/or a pharmaceutically suitable carrier; and

a multi-antigenic glycopeptide comprising a peptidic backbone made up of at least three amino acid residues, wherein two or more of said amino acids <u>are</u> ~~is independently substituted with a glycosidic moiety having the structure~~:

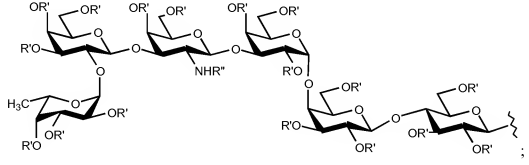


wherein each occurrence of A is a carbohydrate determinant selected from the group consisting of Globo-H, fucosyl GM1, KH-1, glycophorin, STN, Le^y, N3, Tn, 2,6-STn, (2,3)ST, TF, a carbohydrate domain having the structure:



;

and a carbohydrate domain having the structure:

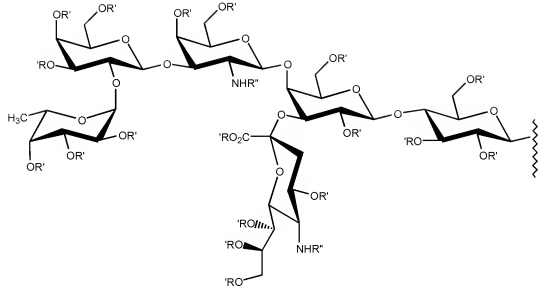


;

wherein each occurrence of R′ is independently hydrogen or a protecting group; and wherein R′′ is hydrogen or a nitrogen protecting group;

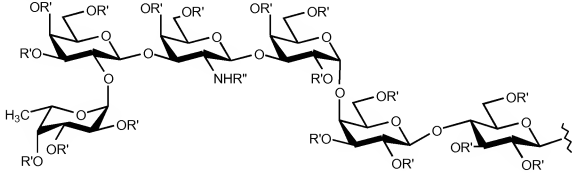
wherein each occurrence of n is independently 1-8 and at least one occurrence of A has a different structure from other occurrences of A;

wherein at least one occurrence of A is a carbohydrate determinant having the structure:



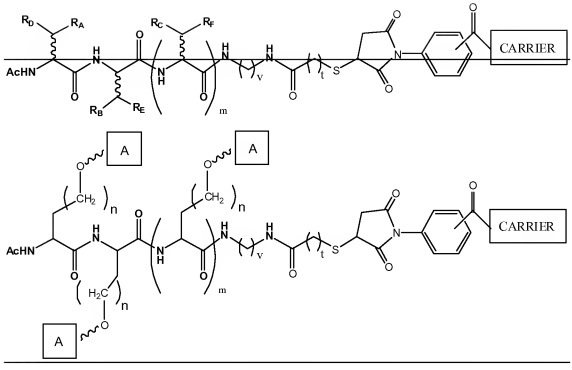
wherein each occurrence of R´ is independently hydrogen or a protecting group; and wherein each occurrence of R´´ is independently hydrogen or a nitrogen protecting group.

92. **(Previously Presented)** The pharmaceutical composition of claim 76, 81 or 86, wherein at least one occurrence of A is a carbohydrate determinant having the structure:



wherein each occurrence of R´ is independently hydrogen or a protecting group; and wherein R´´ is hydrogen or a nitrogen protecting group.

93. **(Currently Amended)** The pharmaceutical composition of claim 81, wherein the construct has the structure:



wherein ~~R_A, R_B and R_C are each independently H or methyl;~~

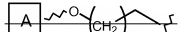
m is 1, 2 or 3;

v is 1-8;

t is 1-8; and

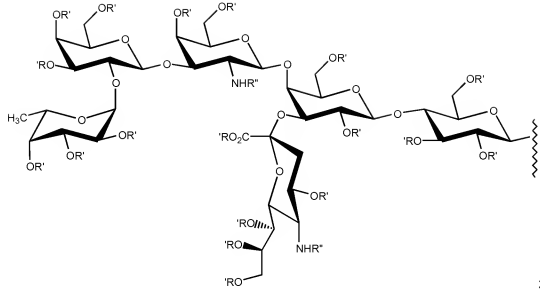
the carrier is a protein;

~~wherein each occurrence of R_D, R_E and R_F is independently an alkyl glycosidic moiety having the structure:~~



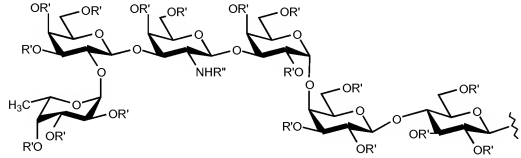
wherein n is ~~0~~ 8 1-8;

each occurrence of A is independently a carbohydrate domain selected from the group consisting of Globo-H, fucosyl GM1, KH-1, glycophorin, STN, Le^y, N3, Tn, 2,6-STn, (2,3)ST, or TF, a carbohydrate domain having the structure:



;

and a carbohydrate domain having the structure:



;

wherein each occurrence of R′ is independently hydrogen or a protecting group;

and wherein R′′ is hydrogen or a nitrogen protecting group

and whereby at least one occurrence of A has a different structure from other occurrences of A.

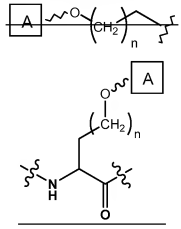
94. **(Previously Presented)** The pharmaceutical composition of claim 93, wherein the protein is bovine serum albumin, polylysine or keyhole limpet hemocyanin.

95. **(Previously Presented)** The pharmaceutical composition of claim 76 wherein at least one of said one or more immunological adjuvants is a saponin adjuvant.

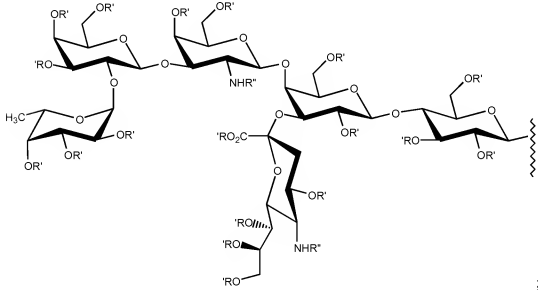
96. **(Currently Amended)** A pharmaceutical composition comprising:

one or more immunological adjuvants and/or a pharmaceutically suitable carrier; and

a multi-antigenic glycopeptide comprising a peptidic backbone made up of at least three amino acid residues, wherein two or more of said amino acids are ~~independently substituted with a glycosidic moiety having the structure~~:

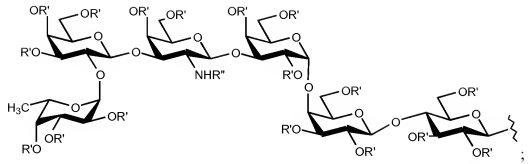


wherein each occurrence of A is a carbohydrate determinant selected from the group consisting of Globo-H, fucosyl GM1, KH-1, glycophorin, STN, Le^y, N3, Tn, 2,6-STn, (2,3)ST, TF, a carbohydrate domain having the structure:



;

and a carbohydrate domain having the structure:



wherein each occurrence of R´ is independently hydrogen or a protecting group; and wherein R´´ is hydrogen or a nitrogen protecting group;

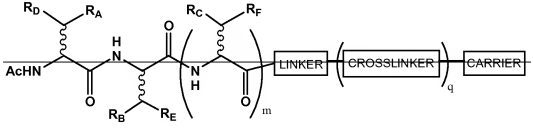
wherein each occurrence of n is independently 1-8 and at least one occurrence of A has a different structure from other occurrences of A;

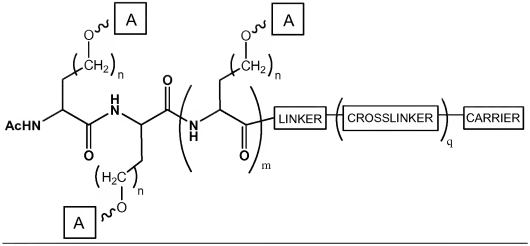
wherein at least one of said one or more immunological adjuvants is saponin adjuvant GPI-0100.

97. **(Previously Presented)** The pharmaceutical composition of claim 76 wherein at least one of said one or more immunological adjuvants is bacteria or liposomes.

98. **(Previously Presented)** The pharmaceutical composition of claim 97 wherein the immunological adjuvant is Salmonella minnesota cells, bacille Calmette-Guerin or QS21.

99. **(Currently Amended)** The glycopeptide of claim 72, wherein said glycopeptide is a construct having the structure:





wherein:

the linker is -O-, -NR_G-, -$NR_G(CR_HR_I)_kNR_J$-,
-$NR_G(CR_HR_I)_kNR_J(C{=}O)(CR_HR_I)_kS$-, -$(CR_HR_J)_kNR_I$-, -$O(CR_HR_I)_kNR_J$, an oligoester fragment comprising from 2 to about 20 hydroxy acyl residues, a peptidic fragment comprising from 2 to about 20 amino acyl residues, or a linear or branched chain alkyl or aryl carboxylic ester; wherein each occurrence of k is independently 1-5; and each occurrence of R_G, R_H, R_I and R_J is independently hydrogen, a linear or branched, substituted or unsubstituted, cyclic or acyclic alkyl moiety, or a substituted or unsubstituted aryl moiety;

the crosslinker is a moiety derived from a crosslinking reagent capable of conjugating a surface amine of the carrier with a terminal thiol of the linker;

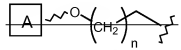
the carrier is a protein or lipid;

m is 1, 2 or 3;

q is 0 or 1;

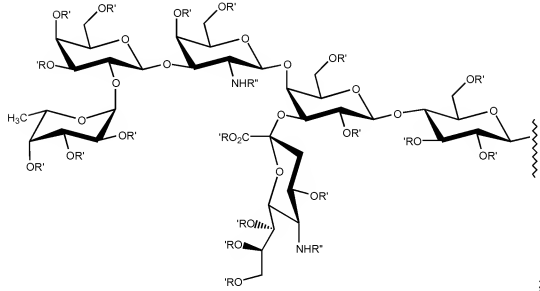
~~each occurrence of R_A, R_B and R_C is independently H or methyl; and~~

~~each occurrence of R_D, R_E and R_F is independently an alkyl glycosidic moiety having the structure:~~



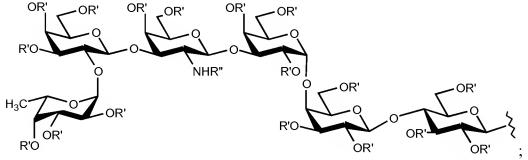
wherein each occurrence of A is independently selected from a carbohydrate domain selected from the group consisting of Globo-H, fucosyl GM1, KH-1,

glycophorin, STN, Le^y, N3, Tn, 2,6-STn, (2,3)ST, TF, a carbohydrate domain having the structure:



;

and a carbohydrate domain having the structure:

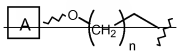


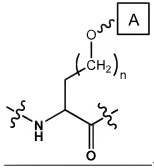
;

wherein each occurrence of R´ is independently hydrogen or a protecting group; and wherein R´´ is hydrogen or a nitrogen protecting group;

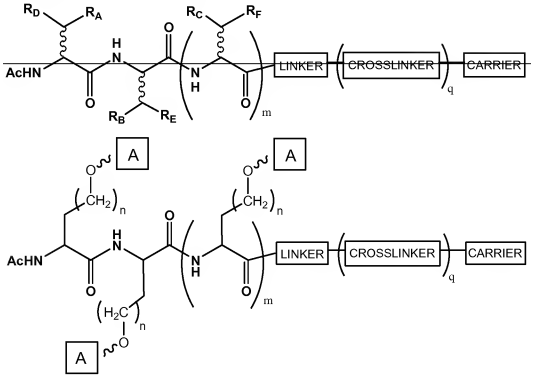
wherein each occurrence of n is independently ~~0-8~~ 1-8; and at least one occurrence of A has a different structure from other occurrences of A.

100. **(Currently Amended)** The glycopeptide of claim 72, wherein the glycopeptide has six occurrences of a ~~the~~ alkyl glycosidic amino acid ~~moiety~~ having the structure:





101. **(Currently Amended)** The pharmaceutical composition of claim 91, wherein said glycopeptide is a construct having the structure:



wherein the linker is -O-, -NR_G-, -$NR_G(CR_HR_I)_kNR_J$-, -$NR_G(CR_HR_I)_kNR_J(C{=}O)(CR_HR_I)_kS$-, -$(CR_HR_J)_kNR_I$-, -$O(CR_HR_I)_kNR_J$, an oligoester fragment comprising from 2 to about 20 hydroxy acyl residues, a peptidic fragment comprising from 2 to about 20 amino acyl residues, or a linear or branched chain alkyl or aryl carboxylic ester; wherein each occurrence of k is independently 1-5; and each occurrence of R_G, R_H, R_I and R_J is independently hydrogen, a linear or branched, substituted or unsubstituted, cyclic or acyclic alkyl moiety, or a substituted or unsubstituted aryl moiety;

wherein the crosslinker is a moiety derived from a crosslinking reagent capable of conjugating a surface amine of the carrier with a terminal thiol of the linker;

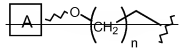
wherein the carrier is a protein or lipid;

wherein m is 1

wherein q is 0 or 1;

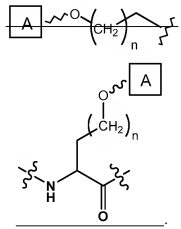
~~wherein each occurrence of R_A, R_B and R_C is independently H or methyl; and~~

~~wherein each occurrence of R_D, R_E and R_L is independently an alkyl glycosidic moiety having the structure:~~



wherein each occurrence of n is independently ~~0-8~~ 1-8.

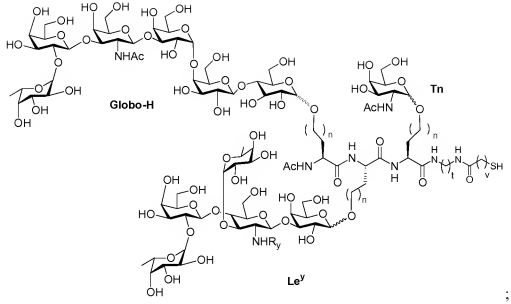
102. **(Currently Amended)** The pharmaceutical composition of claim 91, wherein the glycopeptide has six occurrences of the alkyl glycosidic amino acid ~~moiety~~ having the structure:



.

103. **(New)** The glycopeptide of claim 56, wherein the glycopeptide has three occurrences of A comprising Tn, Globo-H and Le^y.

104. **(New)** The glycopeptide of claim 103, wherein the glycopeptide has the structure:



;

wherein n is an integer from 1-8, t is 3, and v is 1.